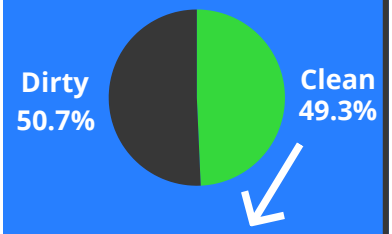
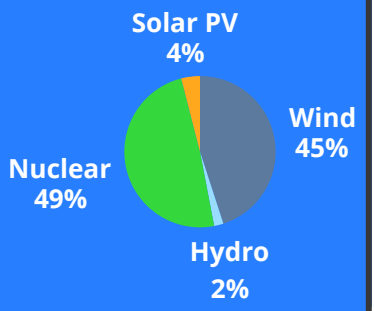
Minnesota Nuclear Brief

Minnesota's Power



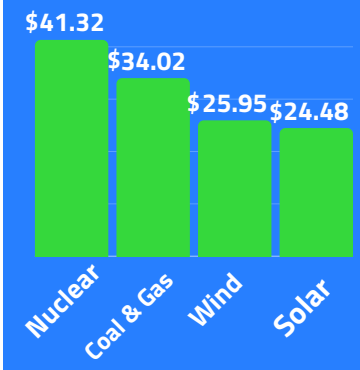
MN's Clean Power



Source: U.S. Energy Information Adminstration (2023)

Energy Industry Wages per hour

Source: USEER Wage Report 2020.



Nuclear energy accounts for the highest median hourly wage in the energy sector

MN HAS A GOAL OF **100% CLEAN ELECTRICITY** BY 2040. HOWEVER, THIS MAY BE IMPOSSIBLE IF LAWMAKERS DON'T TAKE LEGISLATIVE ACTION TO PERMIT THE NEW BUILDING OF THE MOST RELIABLE, ENERGY-DENSE, CLEAN SOURCE OF ENERGY AVAILABLE **- NUCLEAR ENERGY.**

CURRENT LEGISLATION

Since 1994, Minnesota has not allowed construction of new nuclear power plants, despite Prairie Island and Monticello plants operating safely for decades. With three large MN coal plants projected to retire by 2035, repealing this moratorium would allow Minnesota to follow the successful model seen in projects like TerraPower's Natrium reactor in Wyoming, where advanced nuclear is replacing retiring coal plants while preserving jobs and grid reliability.

The true threat to Minnesota comes from the continued use of fossil fuels and the effects of climate change. While used nuclear fuel has yet to cause a single death in human history, air pollution from fossil fuels kills thousands yearly in the United States.

BENEFITS OF NUCLEAR ENERGY FOR MINNESOTA

ENERGY DEMAND AND STABILITY

- With the increased electrification of home heating and vehicles as well as growth in data centers, Minnesota's electricity demand is projected to increase dramatically, putting more stress on an already fragile grid.
- The capacity factor of nuclear energy, which is the amount of time a power plant produces power, is **93%** — the highest of any power source by far. The capacity factor for wind and solar sit around 35% and 25%, respectively. This means **nuclear can be relied on regardless of weather conditions** or time of day.

JOBS AND ECONOMY

- Nuclear energy provides the best benefits for workers in the energy sector and the most just transition for fossil fuel workers. The median **wage and unionization rates** for nuclear workers are the **highest across the sector**, and fossil fuel jobs can transition existing skills and experience to nuclear positions.
- Nuclear supports communities too! Nuclear delivers the **highest tax revenue** of any energy source to the local communities including schools, infrastructure, and public safety.

ABOUT GENERATION ATOMIC

Generation Atomic is a volunteer driven pro-nuclear environmental non-profit that has been fighting for affordable and reliable clean energy from atomic power since 2016. **Learn more at GenerationAtomic.Org**

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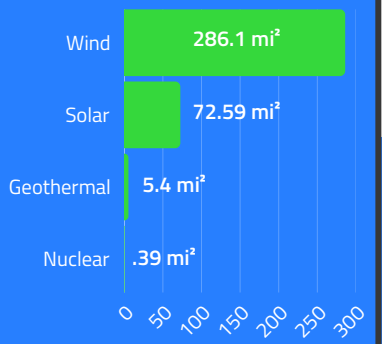
HOW MUCH LAND DOES IT TAKE TO POWER A CITY OF *1 MILLION*?



Source: Lovering et.al., Land-use intensity of electricity production and tomorrow's energy landscape. 2022.

80%

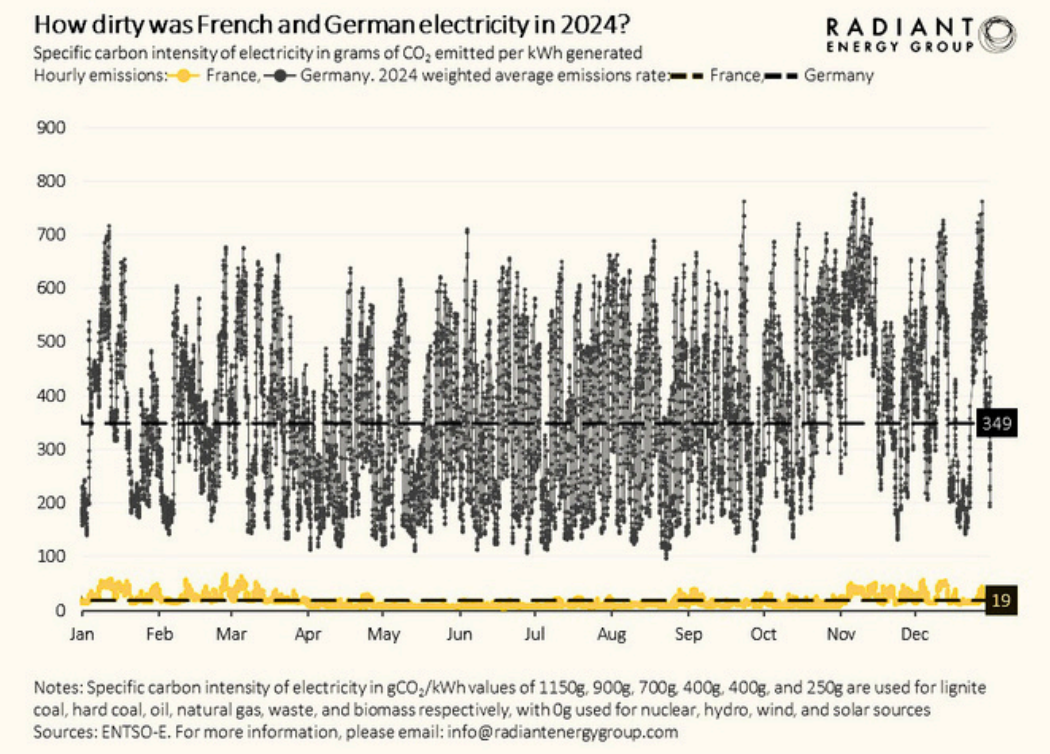
80% OF FORMER AND EXISTING COAL PLANTS COULD BE ECONOMICALLY CONVERTED TO A NUCLEAR PLANT. (DOE, 2022)

7000

BUILDING A NUCLEAR REACTOR CAN EMPLOY UP TO 7,000 WORKERS FROM VARIOUS SECTORS AT PEAK CONSTRUCTION

CLIMATE CHANGE

- Over 73% of all energy consumed in Minnesota comes from fossil fuels used for heating, industrial processes, transportation, and electricity generation.
- A comparison of the carbon intensity of electricity between France and Germany demonstrates the importance of nuclear energy in combatting climate change. Germany's climate strategy has focused largely on the use of wind and solar while phasing out its nuclear fleet, while France's electricity primarily comes from nuclear.
- Due to the intermittency of wind and solar, Germany relies on fossil fuels to make up for energy shortfalls, making their carbon intensity in the past year almost twenty times higher than France.



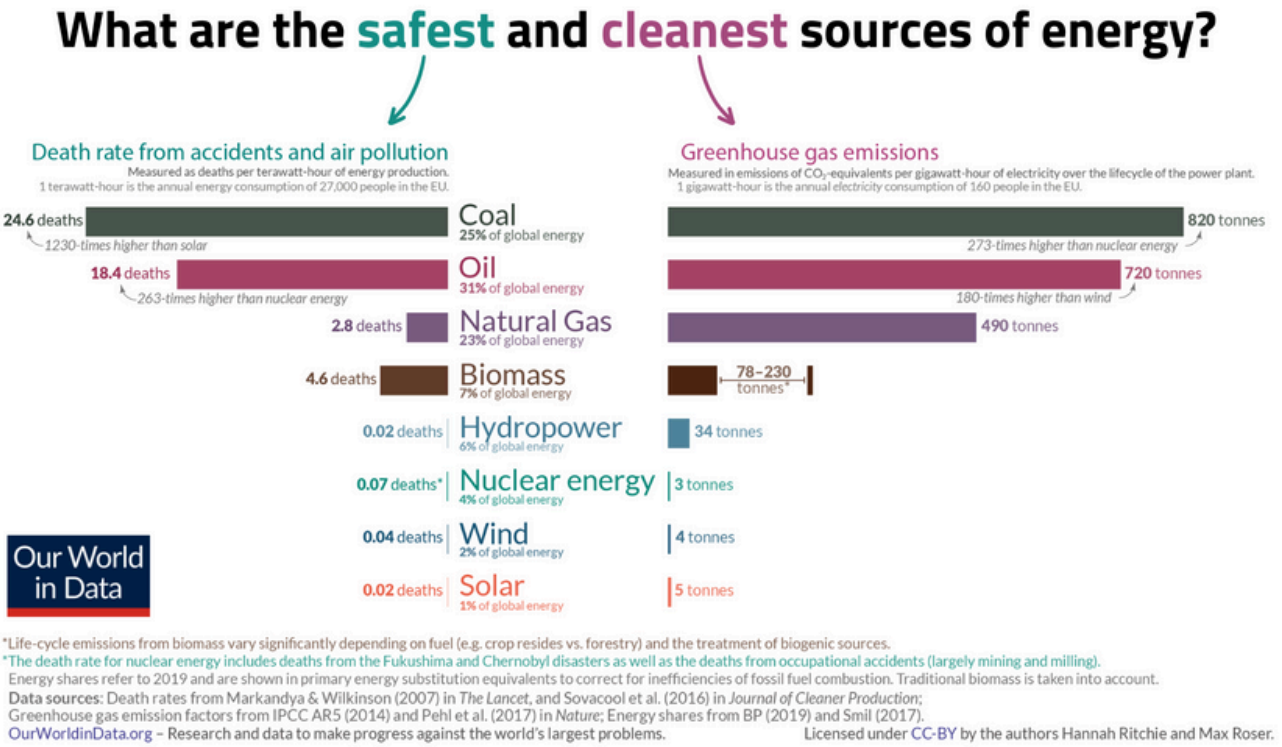
ENVIRONMENTAL JUSTICE

- Harvard University estimates that fossil fuel air pollution is responsible for 1 in 5 deaths worldwide, while numerous studies have found that low-income, minority communities are far more likely to be exposed to higher levels of dangerous fine particulate air pollution.
- If Minnesota were to replace its existing coal generation with nuclear power, it would reduce emissions equivalent to removing 13 million cars from the road every year. This would drastically improve air quality while growing jobs, communities, and tax revenue.

WHY LIFT THE MORATORIUM NOW?

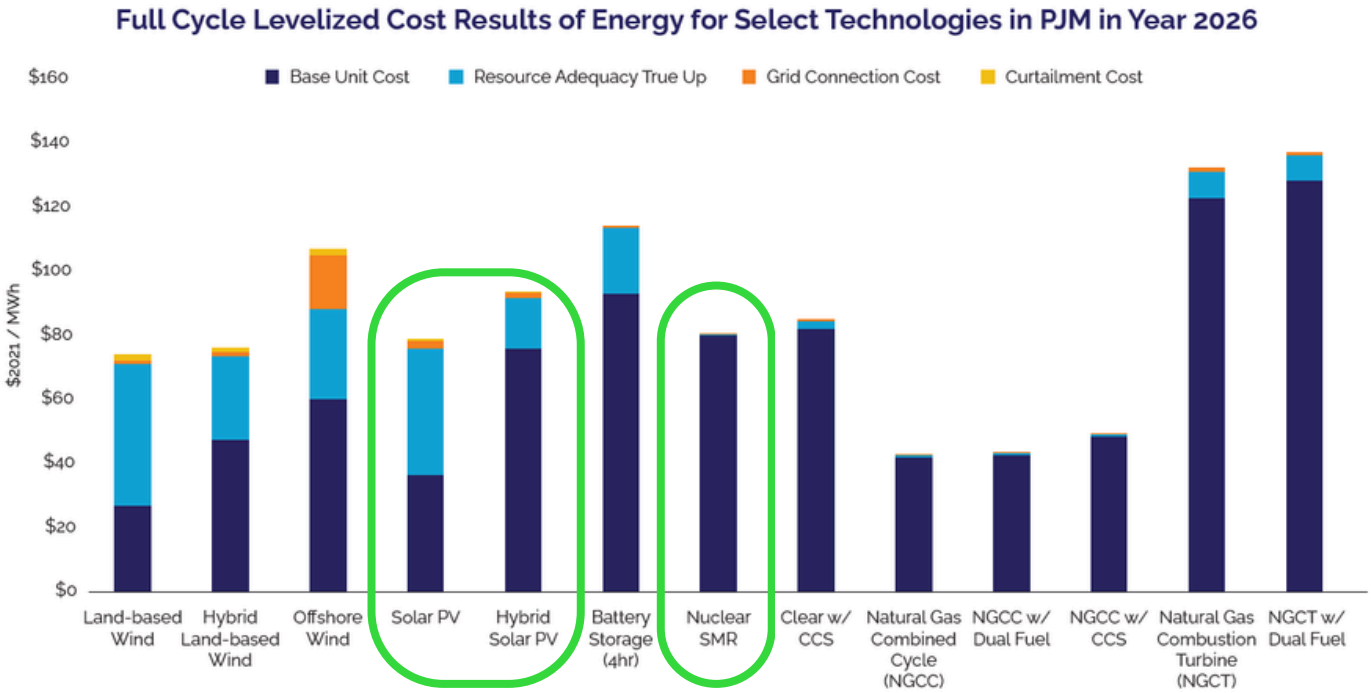
Nuclear projects require years of planning and permitting before any construction begins. Like planting trees—where the best time was 20 years ago and the second-best time is now—Minnesota must lift its nuclear moratorium immediately to meet and stay at our 2040 clean energy goals.

ADDITIONAL RESOURCES



NOT ALL MEGAWATTS ARE CREATED EQUAL:

This analysis captures what traditional metrics miss about integrating renewables



FTI Consulting Inc. (2024). Full-Cycle Levelized Cost of Electricity Analysis in PJM Interconnection. Commissioned by Electric Power Supply Association (EPSA). February 2, 2024.

FREQUENTLY ASKED QUESTIONS

WHAT ABOUT THE WASTE?

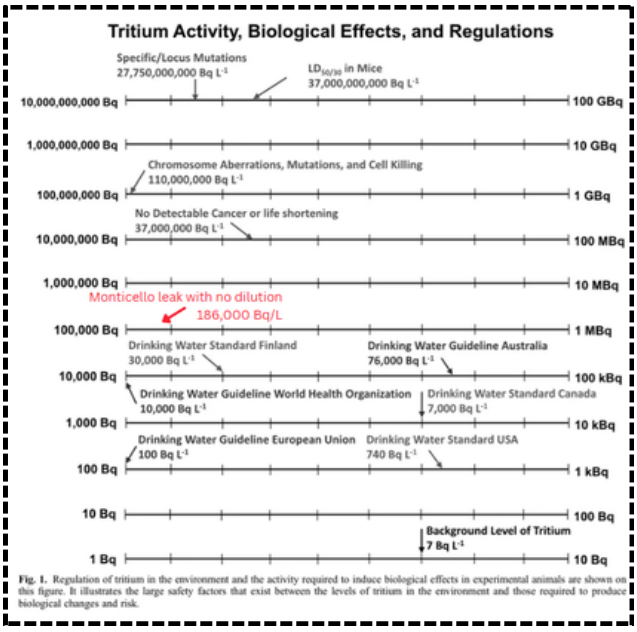
Nuclear waste storage is a solved problem with multiple layers of protection. Used fuel initially cools in water pools, then moves to engineered dry casks that have perfect safety records since their 1986 introduction. These robust containers withstand extreme scenarios and can safely store waste indefinitely while being continuously monitored. The quantity is surprisingly small—all U.S. commercial reactor waste since 1950 would fit on a football field less than 10 yards deep, with Minnesota responsible for just 1.7%. What's more, the radioactivity diminishes dramatically over time—after 600 years, spent nuclear fuel becomes so benign you would need to ingest it to experience harmful effects. While permanent geological repositories remain technically feasible, they await political consensus, not technological solutions.

45 years of Swiss nuclear waste, in a facility the size of a basketball court.

COVRA, the nuclear waste storage facility of the Netherlands. It doubles as the national art depot and a science exhibit for school tours.

WHAT ABOUT THE LEAK OF TRITIATED WATER AT MONTICELLO?

The Monticello tritiated water leak sounds alarming but deserves context. Tritium's radiation can't penetrate skin or even register on Geiger counters. The entire 829,000-gallon leak contained less tritium (1.7 mg) than a single exit sign (2.5 mg). Drinking an 8-oz cup of the undiluted water would expose you to radiation equivalent to a 15-minute flight, while eight gallons equals one chest X-ray. A banana's natural potassium-40 emits radiation 70 times stronger than tritium. Laboratory studies show the leak concentration (185,840 Bq/L) was nearly 600 times below levels where even mild biological effects begin (110,000,000 Bq/L). The plant's communication missteps—using technical jargon and delaying public notification—created unnecessary fear where transparent, relatable explanations would have better served the public.



Brooks, A.L., Couch, L.A., & Chad, S.A. (2012). Commentary: What is the health risk of 740 BQ L^-1 of tritium? A perspective. Health Physics, 104(1), 108-114. [Figure 1, p. 109]
Monticello leak measurement from Sample Well #9 added.